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ABSTRACT

This document describes a practicum effort which entailed development and implementation of a mini-science instructional program for nine gifted students in an elementary school pilot program. The new program included development of necessary instruments and inservice training and utilized feedback from students, parents, and staff. Developmental and implementational components consisted of the following: setting goals, such as the students' ability to think critically and to solve problems; students' demonstration of increased knowledge of the scientific processes and their ability to hypothesize, analyze, and synthesize; and evaluation of their progress through observation and quizzes. Evaluation results indicate that the participating students mastered the objectives set for the mini-science program. The students, teachers, and parents involved considered the mini-science program effective, interesting, and worthy of replication the following year. (Author/BB)

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THE DEVELOPMENT AND IMPLEMENTATION OF A MINI-GIFTED PROGRAM IN SCIENCE FOR ACADEMICALLY TALENTED CHILDREN IN GRADES 3-5 AT SAMUEL MORSE ELEMENTARY SCHOOL

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Thelma R. Butler

Submitted: February 1978
Resubmitted: March 1978

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TITLE Development and Implementation of a Mini Gifted Program in Science for Academically Talented Children in Grades 3-5 at Samuel Morse Elementary School

DESCRIPTORS Elementary School Students; Exceptional Child Education; Innovation; Parent Role; Behavioral Objectives; Gifted; Program Description; Program Development; Teacher's Role; Pilot Program.

ABSTRACT This document describes a practicum effort which entailed development and implementation of a mini-science instructional program for nine gifted students in an elementary school pilot program. The new program included development of necessary instruments and inservice training and utilized feedback from students, parents, and staff.

Initiation of this program involved identifying potentially gifted children in a school located in a low-middle economic area. The school accomodates about 550 children, of whom 197 were in grades three, four and five. The coordinating team identified eleven children who met the criteria for the gifted program; however, only nine actually participated.

Developmental and implementational components consisted of the following: setting goals, such as the students' ability to think critically and to solve problems; students' demonstration of increased knowledge of the scientific processes and their ability to hypothesize, analyze, and synthesize; and evaluation of their progress through observation and quizzes.

Evaluation results indicate that the participating students mastered the objectives set for the mini-science program. The students, teachers, and parents involved considered the mini-science program effective, interesting, and worthy of replication the following year.

The program has been expanded to other elementary schools in the area and could readily be adopted nationwide.

DEVELOPMENT AND IMPLEMENTATION OF A MINI GIFTED PROGRAM IN SCIENCE FOR ACADEMICALLY TALENTED CHILDREN IN GRADES 3-5 AT SAMUEL MORSE ELEMENTARY SCHOOL

by Thelma R. Butler[1]

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Chapter I

INTRODUCTION

In response to parental and community pressure, a program for talented and gifted (TAG) students was initiated by resolution of the Board of Education in Prince George's County, Maryland, in the summer of 1972. Following this action, a steering committee of interested school principals from Cluster B in the Northern Area of the county,[1] in cooperation with members of the instructional staff, developed a budgetary proposal which included funds for a resource team to work with gifted students. The team was to consist of three elementary teachers, one junior high teacher, one senior high teacher, and one coordinator. These resource teachers were selected by a screening committee of principals, instructional supervisors, and the coordinator during the summer of 1973; the program began during the 1973-74 school term. Nine schools were involved in the implementation of this program, known as the "Learning Laboratory," which was designed for use throughout the county. The nine sites included five elementary schools, three junior high schools, and one senior high school.

The Learning Laboratory framework allowed for:

- development of differentiated programs, which had to be adapted for use throughout the county;
- development of techniques and strategies for use with gifted students; and
- immediate feedback as required to refine, modify, and evaluate these techniques and strategies.

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[1] A cluster is an administrative unit consisting of approximately fifteen schools, encompassing all three levels: elementary, junior and senior high schools. One supervisor is assigned per cluster.

This paper describes a pilot program in science for academically talented children which was developed and implemented for children in grades 3 to 5 at Samuel Morse Elementary School in Prince George's County, Maryland, under the overall program described above.

Working Definition of Talented and Gifted

There are many existing definitions. A comprehensive definition follows:

"Gifted and talented children are those identified by professionally qualified persons who [sic] by virtue of outstanding abilities are capable of high performance. These are children who require differentiated educational programs and/or services beyond those normally provided by the regular school program in order to realize their contribution to self and society.

"Children capable of high performance include those with demonstrated achievement and/or potential ability in any of the following areas, singly or in combination:

- general intellectual ability
- specific academic aptitude
- creative or productive thinking
- leadership ability
- visual and performing arts
- psychomotor ability."[2]

For practical purposes, the first category, general intellectual ability, was used for the project at Samuel Morse Elementary since most

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[2]Owenita Sanderlin, Teaching Gifted Children (New Jersey: A.S. Barnes and Company, Inc., 1973), p. 44.

school systems and the general public feel comfortable in starting pilot programs with such a target group. Refinements on the qualifications for TAG students for the Samuel Morse program are given below in the section on inception of the program.

Statement of the Problem

Educators have become increasingly aware that the American public school system has not effectively met the needs of all of the nation's children. Over the past decade, there have been numerous attempts to correct this situation. Most of the attempts have dealt primarily with children labeled "mentally handicapped" or "educationally disadvantaged." What has too often been overlooked is that our nation's brightest youngsters may also be "educationally disadvantaged" because schools have failed to recognize their ability and have failed to provide them with appropriate learning experiences.

Although the public schools in Prince George's County, Maryland, have been committed to an educational program that recognizes the unique values, needs, and talents of the individual student for ten to fifteen years, the emphasis was on special education services to the academically and emotionally impaired student until enactment of the Board of Education resolution in 1972. Prior to the resolution, each school attempted to develop its own program. Generally, when a student was discovered to be breezing through the work that stumped the rest of the class, he was given extra work or accelerated through higher grade levels--but was still restricted to the standard classroom program. He was simply given more of the same. This busy work was not what gifted,

talented children needed. The gifted child needed special attention. He needed a form of enrichment or lateral expansion.

Inception of the Samuel Morse Mini Gifted Program in Science

After enactment of the Prince George's County School Board resolution for a program for TAG students in 1972, realizing that gifted students at Samuel Morse were as disadvantaged in the normal setting at school as were the children with learning difficulties, my principal and I agreed to seek help from the county's instructional coordinator for programs for gifted schildren so that we might establish such a program at Samuel Morse Elementary School. With the help of the instructional coordinator, broad guidelines were developed for initial recommendation for students for the program, on the basis of teachers' and parent's recommendations.

Third, fourth, and fifth grade students were tested with regard to their ability (see Appendix A) and their subject area interests (see Appendix B). Although 64% of the students deemed to be gifted indicated a primary interest in science, testing and teacher observation showed that these students evidenced a lack of motivation, ignorance of scientific methods, lack of curiosity toward scientific pheomena, lack of understanding of the scientific processes, and negative feelings toward education in general--despite their high levels of ability and performance as indicated on the Iowa Tests of Basic Skills (cognitive) and the Slosson intelligence test (again, see Appendix A). These children, in other words, were not achieving.

The test results were borne out by the teachers' observations, using standard county referral forms for the TAG program (see forms in Appendix C). At this point, the county coordinator advised us to begin with a mini science program for TAG students. An action plan was developed in cooperation with the coordinator (see Appendix D).

Planning for the project began in October of 1975. The program itself began and was implemented from May of 1976 to October of 1976 because of staff and student interest.[3] At the time the program was in the planning stages, there were 545 students at Samuel Morse Elementary School. One hundred and ninety-seven of these students were third, fourth, and fifth graders. Twenty-one students were initially recommended for this program. The coordinating team identified 11 as eligible in terms of the criteria of the program as further described in Chapter IV. Only 9 students actually participated, since two families moved from the school district.

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[3]This included voluntary participation during summer months by both staff and students.

Chapter II

PRACTICUM OBJECTIVES

The major objectives of the practicum were twofold, as described below.

Objective I

It was assumed that 75% of the children would independently study "The Earth's Changing Surface" (a unit in earth science) and would write and give oral reports to show that they could analyze, synthesize, and categorize the scientific information they received.

Evaluative Treatment

The teachers were to grade the children's reports against Bloom's Taxonomy of Educational Objectives[1] and record the results in their grade books.

Objective II

It was assumed that 75% of the children, each studying a different aspect of soil conservation and services provided by county, state, and federal agencies (a unit on soil conservation), would be able to determine hypotheses, gather the necessary information, organize and conduct an experiment, and interpret the data collected with the other groups of children. (The students were divided into three groups on the basis of interrelated subject matter.)

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[1]Benjamin S. Bloom, Taxonomy of Educational Objectives The Classification of Educational Goals:Handbook I: Cognitive Domain (New York: David McKay Company, Inc., 1956).

Evaluative Treatment

The teachers were to collect the written reports, grade them, and record them in their grade books. Also, the teachers were to record the results of each child's experiment in their books.

Chapter III

DEVELOPMENT OF PROGRAM STRATEGY THROUGH REVIEW OF THE LITERATURE

A search of the literature was conducted to support the development and implementation of a gifted program in science at the elementary school level. The following comments by noted authors about gifted children served as a basis for development of the program, in conjunction with suggestions from the TAG coordinator.

John C. Gowan, in his article, "Organization of Guidance for Gifted Children" (Educating the Gifted), stresses that "theoretically and practically, education for the ablest students is best viewed as a natural outcome of good guidance services which stress individualization of education." He further said that:

> . . . just as it was once thought that the able needed no curriculum modifications, so it has been said that they are bright enough to find their way unaided by guidance services. What is conveniently forgotten is that the able may have special problems, which it takes individual guidance to handle.[1]

The concept of individualization of education was incorporated in the mini-science program for gifted children at Samuel Morse school, especially in the unit on soil conservation which is described in more detail in Chapter IV. In this unit, each student studied a different aspect of soil conservation, later sharing this information with the other students. In addition, the program represented a significant modification of the standard science curriculum.

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[1] John C. Gowan, "Organization of Guidance for Gifted Children," Educating the Gifted (New York: Holt, Rinehart and Winston, Inc., 1964), pp. 374-75.

Burnside, in a thoughtful article, stated that a guidance program for able children should include early recognition, a challenging educational program, individual counseling, guidance for parents, and community cooperation.[2] He further argued that:

> . . . while guidance should be a continuous process throughout school, there are some critical junction points where lack of guidance may shunt the gifted onto the wrong track. It is especially important that all gifted and able youths be located in the early stage despite their status.[3]

Development and implementation of the mini-science program at Samuel Morse incorporated most of these elements. The school is located in a low-middle economic area, and parents and the community were involved in the program from the outset. The program was carried out in an elementary school, recognizing gifted children early in their education and providing them with a challenging curriculum in science--a subject in which the majority had expressed interest. Intensive individual counseling was not incorporated in the program, however.

In Educating Exceptional Children, Samuel Kirk stated that "Perhaps one of the most left out groups of children is the gifted."[4] He explicated three basic means of structuring programs for the gifted: acceleration, enrichment devoted to further development of the particular skills and talents of gifted children, and special grouping.

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[2] L. H. Burnside, "Psychological Guidance of Gifted Children," Educating the Gifted (New York: Holt, Rinehart and Winston, Inc., 1964), p. 375.

[3] Ibid., p. 379.

[4] Samuel A. Kirk, Educating Exceptional Children (Boston: Houghton Mifflin Company, 1962), p. 26.

Acceleration, as defined by Kirk, was not considered appropriate for this pilot program in science. One of his suggestions for special grouping--organizing special sections in the subject matter in upper elementary grades--was the method chosen for the program, which was carried out in a resource room separate from the regular classroom, for gifted children from the third to fifth grades. The program also incorporated four of Kirk's definitions of enrichment: development of the student's ability to associate and interrelate concepts, to evaluate facts and arguments critically, to create new ideas and originate new lines of thought, and to reason through complex problems.[5]

Gertrude Hildreth in her book, Introduction to the Gifted, stated:

> The modern child has an affinity for scientific studies, which is encouraged by advertising, news items, museum exhibits, and fascinating science books of every description. Even though a student does not plan to become a scientist, science studies encourage scholarly thinking that is valuable in other areas. The modern curriculum wisely requires some work in science in both the elementary grades and high school; thus the students not only grasp the great principles of the physical world, but become acquainted with scientific methods of thinking and problem solving. The students learn that the constructive and destructive uses of science affect the entire world.[6]

Hildreth's viewpoint, coupled with the children's expressed interest in science (see survey in Appendix B), was influential in the decision to make science the focal point for the mini-program for TAG students.

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[5] Ibid., p. 30.

[6] Gertrude H. Hildreth, Introduction to the Gifted (New York: McGraw-Hill Book Company, 1966), pp. 261-62.

Gallagher, in Teaching the Gifted Child, has agreed with Hildreth that it is imperative for a school to meet the scientific interests and needs of students or it cannot claim to have an adequate enrichment program for gifted children.

Gallagher cautioned that:

> One of the serious problems of schools in stimulation of the gifted science students is to impress on these students the importance of hard, sustained and unrelenting work. Many of these students have had an easy time in school and have rarely met a problem that couldn't be solved in short order. Most of these students have not learned, or have not been taught, to sustain effort and will quit prematurely in their attempts. Practice in thoroughly thinking through complex problems seems to be needed. Such practice can come only when the curriculum is designed to create an environment where difficult problems can be considered. This can usually be considered only when gifted children are not restrained by those of lesser ability and when the teacher has the knowledge and skill to sustain such projects.[7]

The mini program was designed to incorporate the elements Gallagher stressed. Both of the teachers who carried out the program had previous training and experience in working with gifted children in other school systems. The gifted students worked on their science program in a setting separate from their regular classrooms. Interestingly, most of the nine pupils had presented behavior problems prior to their enrollment in the program, apparently due to boredom, since their behavior improved when they became absorbed and challenged by their special projects in science.

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[7]James J. Gallagher, Teaching the Gifted Child (Boston: Allyn and Bacon, Inc., 1964), p. 141.

The review of the literature indicated that a TAG program should be systematic, continuous, and comprehensive, using small units of instruction and instruction with small groups of students. Review of the literature was also effective in aiding the TAG team in obtaining materials, identifying qualified students, testing them, and the like.

Chapter IV

FURTHER DEVELOPMENT AND IMPLEMENTATION OF THE PROGRAM

Preparation for the gifted program in Prince George's County, Maryland, began in the fall of 1975. Inservice workshops on gifted children were held during the months of October, January, and March as part of the overall professional inservice training program, with the county's coordinator for the gifted program supervising those workshops. The workshop program consisted of an overview of the gifted program, and description of methods for identification of students, testing, curriculum development, and staffing.

In April of 1976, the county program coordinator for the gifted held an orientation on the gifted program for the staff at Samuel Morse Elementary School and for community members. At this meeting with the faculty, an organizational steering committee was formed consisting of two special education resource room teachers, the reading teacher, the media specialists, two classroom teachers (one primary and one intermediate), the principal, the president of the PTA, and the writer of this practicum paper.

An assessment of school facilities and resources was then made by the writer, and instructional personnel were identified and assigned program planning tasks. Following the personnel assignments, a series of organizational meetings were held during May 1976.

Personnel goals were established:

- All staff and parent participants, and the writer, would play significant roles in establishing and supervising the gifted program in terms of planning and carrying out the science activities.
- All gifted activities (e.g., investigations, experiments, and the like) would be supervised by a teacher, a parent, and the writer, if needed.
- The writer would provide leadership for implementing techniques employed in the program.
- The writer would be responsible for overseeing the daily plans for the program.
- One hour each day would be set aside for student activities in the gifted program. This would allow time for projects to be completed while limiting classroom disruption for special activities.
- Staff participants would attend numerous meetings before and after school, for planning purposes.

The school's steering committee was very actively involved in identifying students who met the criteria for the gifted program. Three criteria were established for consideration of students for participation: 1) aptitude results from the Iowa Tests of Basic Skills, 2) teacher-parent referral, 3) Slosson test results of 135 or above. The first two criteria were set by the in-school steering

committee; the third criterion was mandated by the Prince George's County Gifted Program. The steering committee also surveyed cummulative records and staff referrals.

Eleven students were identified as eligible for the program on the basis of the above criteria; however, only nine participated since two of the children moved out of the county. (The Iowa and Slosson test results for the nine students who participated in the program are given in Appendix A.) Of these nine students, two were in grade three, four in grade four, and three in grade five.

The two instructional teachers decided to team teach. At this point a preliminary meeting was held with the coordinator for the gifted program, who suggested materials and supplementary aides suitable for TAG students. These materials were carefully reviewed and selected by the teaching team and the writer. An organizational planning sheet was also designed at this time to facilitate keeping records of the lessons and conceptual schemes taught.

The team selected two units for study by TAG students at Samuel Morse Elementary School: an earth science unit and a soil conservation unit. Implementation of each unit is discussed below.

Earth Science Unit

This unit, "The Earth's Changing Surface," was introduced to the students at their first regular class meeting for the program. The course outline was discussed and materials were made available to the

students. Each student was given a glossary of the relevant scientific vocabulary prepared by the teachers. Informal discussion followed, with questions and answers. The teachers pre-tested the students on the basic subject matter to evaluate their level of knowledge at the outset of the course.

During the course, the teachers examined, questioned, and compared the children's oral and written communications. At the completion of the course, post-tests on the subject matter were administered to each child.

Soil Conservation Unit

The unit on soil conservation was introduced to the students at their second class meeting. Questions and informal dialogues followed the introduction. The specifics of the program were then outlined and an illustrated presentation on soil conservation was given by a local agricultural agent, who also answered questions. Books, pamphlets, articles, newspapers, and other publications about many different services performed by county, state, and federal agencies concerned with soil conservation were available to the students. An area in the classroom was set up with materials that would enable the students to conduct experiments, including science kits. Opportunities were provided for the students to conduct experiments, make hypotheses, and gather, organize, and interpret data.

The children were required to demonstrate their insight in problem solving and to predict solutions to the problems through their experiments and oral presentations. They were also required to demonstrate

their ability to construct tables and graphs. In addition, they analyzed other pupils' efforts and products, such as exhibits, reports (written and oral), and experiments.

The teachers collected and graded booklets students made concerning their experiments and learning experiences, and evaluated their oral and written reports. Because each student was studying a different subject area, it was impractical to administer pre- and post-tests for the soil conservation unit.

Evaluation of the results of these two innovative teaching units is given in the following chapter.

Chapter V

EVALUATION OF THE EFFECTIVENESS OF THE PROGRAM

Many variables were used in evaluating students' progress in relation to the program and the effectiveness of the program. Data collected from teachers, students, and parents were the prime sources for the evaluation.

Basic Data Collected

The data generated with regard to the major objectives of the practicum were as follows.

Objective I: It was assumed that 75% of the children would independently study "The Earth's Changing Surface" (a unit in earth science) and would write and give oral reports to show that they could analyze, synthesize, and categorize the scientific information they received.

Results Achieved: By October 1976, all nine children had completed independent study of "The Earth's Changing Surface," as documented by the teachers' grade books. Tests were administered to the students on the basic subject matter at the beginning of the program and at its conclusion. The students clearly showed a higher level of mastery of the subject matter at the end of the six-week course (see Table 1).

Table 1

Pre- and Post-Testing of Student Participants

Student	Pre-Test Raw Score May 1976	Post-Test Raw Score October 1976
S1	76	94
S2	74	98
S3	76	90
S4	78	96
S5	78	90
S6	78	98
S7	76	96
S8	78	98
S9	80	100

During the course, the nine students prepared both oral and written reports to show that they could analyze, synthesize, and categorize the scientific information they received. Oral reports were given as the subject matter was studied, with written reports submitted the same day. The students' grades on the oral and written tests are given in Table 2.

Table 2

Summary of Grades on Reports - Earth Science Unit

Student	Report Date	Oral Grade	Written Grade
S1	September 20, 1976	A	A
S2	September 20, 1976	A	A
S3	September 22, 1976	A	B
S4	September 23, 1976	A	A
S5	September 21, 1976	B	A
S6	September 24, 1976	A	A
S7	October 22, 1976	A	A
S8	October 21, 1976	A	A
S9	October 23, 1976	A	A

Teachers graded the reports against Bloom's Taxonomy of Educational Objectives[1] to determine student skills in analysis, synthesis, and application, the three levels of skill being evaluated. The students' letter grades were based on their mastery of these skills. In each student report, a minimum of two examples for each skill were required as evidence of mastery (See Table 3).

[1]Benjamin S. Bloom, Taxonomy of Education Objectives The Classification of Educational Goals Handbook 1: Cognitive Domain (New York: David McKay Company, Inc., 1956).

Table 3

Summary of Student Mastery of the Skills of Analysis, Synthesis, and Application - Earth Science Unit

Student	Analysis Examples	Synthesis Examples	Application Examples
S1	2	2	2
S2	2	2	2
S3	2	1	1
S4	3	3	2
S5	2	1	2
S6	3	3	2
S7	2	2	2
S8	3	2	2
S9	3	3	2

Seven students (78%) achieved mastery of these skills. Unfortunately, S3 and S5 did not achieve mastery. Nonetheless, the overall objective for the group was met.

Objective II: It was assumed that 75% of the children, each studying a different aspect of soil conservation and services provided by county, state, and federal agencies (a unit on soil conservation), would be able to determine hypotheses, gather the necessary information, organize and conduct an experiment, and interpret the data collected with the other groups of children. (The students were divided into three groups on the basis of interrelated subject matter.)

Results Achieved: By October 1976, all nine of the students had studied various aspects of soil conservation (see Table 4 for the topics each child studied). In October, they submitted written reports to show that they had determined hypotheses, gathered information, organized and conducted an experiment, and interpreted the data. These written reports were collected and graded by the teachers (see Table 5).

Table 4

Summary of Soil Conservation Problems Studied

Student	Soil Conservation Problem
Group 1	
S1	Crop Rotation
S2	Irrigation
S3	Erosion
Group 2	
S4	Strip Mining
S5	Strip Cropping
S6	Overgrazing
Group 3	
S7	Urbanization
S8	Shelterbelts
S9	Land Reclamation

Table 5

Summary of Student Grades on Knowledge of Scientific Methods - Soil Conservation Unit

	Components of Scientific Method:			
Student	Hypotheses Stated	Information Gathered	Experiment Conducted	Interpretation of Data
S1	A	A	A	A
S2	B	A	A	A
S3	A	A	B	A
S4	A	A	A	B
S5	A	A	A	B
S6	A	A	A	A
S7	A	B	A	A
S8	A	A	A	A
S9	A	A	A	A

Standardized tests were not available for this unit. On the basis of teacher judgment, all nine students (100%) achieved mastery of this unit.

Additional Data Collected

As an additional assessment measure, the students were asked to evaluate the enrichment program in terms of critical thinking activities, science activities, and research activities. In all three instances, they ranked the activities as "very interesting" or "good." (See Tables 6, 7, and 8.)

Table 6

Children's Evaluation of Activities in Critical Thinking

	Very Interesting	Good	Mediocre	Poor
Observation	35%	60%	5%	0%
Hypothesizing	55%	35%	10%	0%
Analyzing	40%	35%	25%	0%
Classifying	60%	30%	10%	0%

Table 7

Children's Evaluation of Science Activities

	Very Interesting	Good	Mediocre	Poor
Investigations	70%	20%	10%	0%
Experiments	75%	25%	0%	0%
Reports	35%	55%	10%	0%

Table 8

Children's Evaluation of Research/Resource

	Very Interesting	Good	Mediocre	Poor
Books/magazines	40%	50%	10%	0%
Filmstrips/movies	45%	40%	15%	0%
Field trips/ speakers	95%	5%	0%	0%

All students indicated that they had learned something new. Ninety percent stated that note-taking skills helped in organizing their thinking.

Finally, all participants were asked to evaluate the program at its completion. The results are as shown below in Table 5.

Table 9

Program Evaluation by All Participants

	Well Regarded	Moderately Well Regarded	Poorly Regarded
Children	75%	25%	0%
Parents	90%	10%	0%
Teachers	95%	5%	0%

On the basis of the evaluation measures shown above, and the clear enthusiam of the students and the teachers for the program, the Board of Education of Prince George's County approved of continuation of the program at Samuel B. Morse for the school year 1976-77.

Chapter VI

INSTITUTIONALIZATION OF THE PROGRAM

The practicum's mini gifted program in science is now a part of the regular curriculum for gifted students at Samuel Morse Elementary School, largely as a result of the students' documented progress and the participants' evaluation of the program.

The program was designed and implemented with the intent that it be adaptable to other elementary schools in the county, and perhaps nationwide. At present the program is being widely adopted in Prince George's County, information about it having been disseminated through seminars and at meetings of school administrators within the county.

The channels through which the program was instituted in Prince George's County and in Samuel Morse Elementary School are thoroughly described in Chapters I and IV of this paper. Comparable procedures could be carried out in any jurisdiction.

Chapter VII

CONCLUSIONS AND RECOMMENDATIONS

The basic approach to the mini program in science for gifted children described above proved to be highly viable, as documented in the section on evaluation of the program. In that it is already beginning to be adopted by neighboring schools, it is likely to be adaptable for other parts of the nation.

Many school districts have not yet begun to deal with appropriate education for the gifted. It is felt that this program could offer a start, at the elementary level.

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APPENDIX A

Qualifying Test Results of Children Included in Program

QUALIFYING TEST RESULTS OF CHILDREN INCLUDED IN PROGRAM

	Iowa Tests of Basic Skills Aptitude-Non Verbal		Slosson Intelligence Test
Student	Raw Score	Percentile Rank	Mental Age plus Chronological Age
S1	79	99	142.4
S2	79	99	150.0
S3	79	99	147.2
S4	78	98	148.0
S5	79	99	139.0
S6	80	99	150.4
S7	80	99	149.0
S8	78	98	140.0
S9	79	99	150.2

APPENDIX B

Initial Student Interest Survey

INTEREST SURVEY (For Students)

On the line, rate which subject you like best in rank order: 1 for first choice; 2 for second best; 3 for third choice; 4 for fourth, and 5 for the least liked subject.

RANK ORDERED AS "1":

* English Grammar (Language Arts)

18% Math

64% Science

* Social Studies

* Art

9% Music (Instrumental)

* remaining 9%

Name_____ Teacher_____

Room #_____ Date_____

APPENDIX C

Teacher Referral Forms

PRINCE GEORGE'S COUNTY PUBLIC SCHOOLS
UPPER MARLBORO, MARYLAND

C-1

PROGRAMS FOR INTELLECTUALLY GIFTED STUDENTS

Referral Information For Participation in the Program

Date_____

STUDENT_____ AGE_____

TEACHER_____ DATE OF BIRTH_____

GROUP TEST SCORES: (Name of Test and Date Given) GRADE LEVEL SCORE/PERCENTILE

_____

_____

_____

_____

CHECKLIST: 1 Seldom or never; 2 Occasionally; 3 Often; 4 Almost always

	1	2	3	4	Comments
1. CURIOSITY, wide range of interests, a desire to know how, why, and when things happen.					
2. MEMORY, ability to remember details, facts, or knowledge studied earlier.					
3. SPEED, in learning new things.					
4. VOCABULARY, has unusually advanced vocabulary for age or grade level					
5. ABILITY, to comprehend abstract ideas rapidly. Needs a minimum of concrete experiences to grasp new ideas or concepts.					
6. READING SKILLS, above average for age level.					
7. READS, a great deal on his/her own. May show preference for autobiography atlases, or encyclopedias.					
8. KEEN and alert observer: usually "sees moore" or "gets more" out of a story, film , etc. than others.					

CHECK LIST FOR IDENTIFYING THOSE CHILDREN IN SCIENCE

1. Interest in science during pre-school year.
2. Curiosity as to what makes things work.
3. Ability to understand abstract ideas at an early age.
4. Strong imagination in things scientific.
5. A love of collecting.
6. Abundance of drive-willingness to work on a science project for long periods of time in the face of difficult abstacles.
7. Better than average ability in reading.
8. Better than average ability in math.
9. Unusual ability to verbalize ideas about science.
10. High itellegence quotient of 120 or more.
11. Tendency to think quantitatively - to use numbers to help express ideas.
12. Willingness to master the names of scientific objects.
13. Willingness to pass up sports and other games in favor of scientific pursuits.
14. Tendency to relate stories about science, including the writing of science fiction.
15. Creativity in science projects.
16. Evident discontent with reasons which other children readily accept for things scientific.
17. Need proof of scientific explanations.
18. Exceptional memory for detail.
19. Willingness to work alone.

Student's Name_____Date_____

Teacher's Name_____Grade_____

APPENDIX D

Action Plan for Samuel Morse School

D-1

ACTION PLAN: SAMUEL F.B. MORSE ELEMENTARY SCHOOL
GIFTED PROGRAM

SCHOOL SYSTEM GOAL: "To help all students progress toward their maximum capabilities" (Statement of Concern, Educational Master Plan)

TARGET: Academically talented students in grades 3, 4, and 5 will be grouped together once a week for a two-hour period outside their regular classrooms under the direction of two teachers who volunteered to assume responsibility for instruction of the group. Content area explored by the group will be a vehicle only for teaching the higher cognitive operations of analysis, synthesis, and evaluation; and problem solving.

DATA USED: Criteria for student selection have been established by the Gifted Pilot Program (e.g. survey form and standardized testing information.) Such students in grades 3-5 meeting these criteria will be given an opportunity to participate in the program on a trial basis.

SPECIFIC OBJECTIVES	STRATEGIES	RESOURCES	TIME LINE	MONITORING	ACCOMPLISHMENTS
STAFF & COMMUNITY ORIENTATION . To inform staff and community of the purposes and goals of the program for gifted & talented and the directions established by the pilot program in Cluster A.	. Faculty meeting with the County Coordinator of the Gifted Program.	Mrs. Jane Hammil Mrs. Ruth Rinker In-school personnel	April 1976	Principal Principal	Meeting held. Faculty response postive
	. Discuss program for gifted with PTA Executive Committee.		April 1976		PTA supportive of idea.
	. In-service workshops were part of our professional inservices, therefore the teachers and I were already trained.	LTI, Mrs. Jane Hammil School System (Northern Area)	October January March	Vice Principal and teachers	Materials for program implementation and curriculum collected.
	. Review gifted program with school Parent Advisory Committee	Principal	April 1976		Parent Advisory Group reaction favorable.

SPECIFIC OBJECTIVES	STRATEGIES	RESOURCES	TIME LINE	MONITORING	ACCOMPLISHMENTS
STEERING COMMITTEE . To establish in-school committee to select students for participation in the pilot program.	. Volunteer teachers (2) at 5th and 6th grade levels. . Vice Principal-coordinator . Media Specialist . Parent representative . Principal (ex-officio)		May, 1976 Organizational Meeting		Meeting held. Mr. Jaffe and Mrs. Crabtree will teach in the program. Steering committee will survey faculty and prepare list of students to be tested.
STUDENT POPULATION . To identify students in grades 3-5 who meet established criteria for gifted program. . Referral forms-teacher .CAT score -98% . Slossen - 135	. Survey cumulative records, staff referrals	Steering Committee	May, 1976		
	. Prepare list of students who will be administered the Slossen	Steering Committee	May, 1976		
	. Obtain required parent permission forms for testing.	Vice Principal	Mid May 1976		
	. Administer Slossen and prepare list of identified students.	Trained Resource Teachers	Mid May 1976		

SPECIFIC OBJECTIVES	STRATEGIES	RESOURCES	TIME LINE	MONITORING	ACCOMPLISHMENTS
ORGANIZATIONAL STRATEGIES	. Pull out students who meet criteria once a week for 2 hour afternoon block with a teacher. Two teachers will plan along with me, weekly units with group.	Vice Principal Teachers and Vice Principal	May, 1976 (pilot program) May-Nov. 1976		
PROGRAM . Higher cognitive skills will be taught through content field of Science	. Beginning units to be constructed from available instructional materials recommended by the coordinator of the Gifted. . Teacher constructed units will be based upon recommendations made in: Providing Programs for the Gifted and Talented-A Hardback. . Field Trips	. Vice Principal and Parents			